

Abstract

The present invention relates to the device for animal inspection and quarantine and the preparation method thereof. The present invention is especially applicable to the detection of the pathogen of bovine spongiform encephalopathy (BSE) (also known as "mad cow disease"). The present invention employs a piezoelectric chip, a microelectrode array and a common electrode fixed on the lower side surface and upper side surface of the piezoelectric chip, respectively, and a BSE PrP antibody array to constitute the piezoelectric biochip for the detection of the BSE pathogen. The BSE PrP antibodies are immobilized on the electrodes of the microelectrode array in a format corresponding uniquely to the electrodes of the microelectrode array by adsorbing, bonding, cross-linking, embedding or self-assembly process. The combination of the piezoelectric biochip and a detector constitutes the piezoelectric biochip detection system for the BSE pathogen. When the antibodies react with the corresponding PrPs immunochemically, the information about the PrPs can be detected at real time by measuring the resonant frequency, and the PrPs thus can be analyzed qualitatively and quantitatively. The present invention is applicable to the early, effective and rapid detection of the BSE pathogen.